



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PROBLEMS FOR SOLUTION.

ARITHMETIC.

158. Proposed by JAMES F. LAWRENCE, A. B., Professor of Mathematics, Rogers Academy, Rogers, Ark.

My agent sold pork at 5% commission; increasing the proceeds by \$20, I ordered the purchase of flour at 3% commission; after which flour rose 9%, my whole gain was \$40. What did he sell the pork for?

159. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, Ohio.

The amount of tax assessed on the property of a city is $T = \$145850$; and the treasurer was allowed a fee of $m\% = \frac{1}{4}\%$, for collection. If $n\% = 10\%$, of the tax was uncollectible, what were the net proceeds of the tax?

ALGEBRA.

153. Proposed by G. B. M. ZERE, A. M., Ph. D., Professor of Chemistry and Physics in The Temple College, Philadelphia, Pa.

If $x = \sum_{n=0}^{\infty} e^{-k[t+(2a\pi/h)]} \sin n\left(t + \frac{2a\pi}{h}\right)$, find value of x freed from Σ .

154. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, Ohio.

Deduce the Sylvesterian Reciprocalant from $ax^3 + 3bx^2y^2 + ay^3 + d = 0$.

GEOMETRY.

187. Proposed by R. TUCKER, M. A.

AD , BE , CF are the altitudes of the triangle ABC ; k_1, k_1' ; k_2, k_2' ; k_3, k_3' are the 8 points of the triangles EAB , FCA ; FBC , DAB ; DCA , EBC , respectively; prove that $k_3'k_1 = k_1'k_2 = k_2'k_3 = R \sin A \sin B \sin C$. ρ_1, ρ_1' ; ρ_2, ρ_2' ; ρ_3, ρ_3' are the Brocard radii of the above triangles, prove that (1) $\rho_1\rho_2\rho_3 = \rho_1'\rho_2'\rho_3'$; (2) $(\rho_2'^2 - \rho_3^2)/a^2 + (\rho_3'^2 - \rho_1^2)/b^2 + (\rho_1'^2 - \rho_2^2)/c^2 = \frac{1}{4}$; (3) the sets of 4 Brocard-points for the above pairs of triangles are concyclic (on three circles); (4) the tangent from any one of the right angles of the above triangles to the Brocard circle of the triangle is a mean proportional between the tangents to the same circle from the remaining (two) angles.

188. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, Gloucestershire, England.

$ABCD$ is a quadrilateral whose diagonal triangle is PQR , P on AD and R on AB . PQ meets AB in Z . If C moves along PB what will happen to Z ?